

**Amendments To The Drawings:****In The Drawings**

FIG.'s 1-4 are amended to show "data bus" and "I/O terminal" elements as described in the specification. An annotated sheet for FIG.'s 1-4 are attached. Replacement sheets for the drawings are being submitted pursuant to 37 CFR 1.121(d).

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**REMARKS**

Thorough examination and careful review of the application by the Examiner is noted and appreciated.

The Examiner has objected to paragraph [0044] of the Specification.

The Examiner has objected to the Drawings under 37 CFR 1.83(a).

The Examiner has objected to Claim 11 because of the following informality: "method steps have been confusingly added to an apparatus claim".

The Examiner has rejected Claims 1-23.

Claims 1-23 are pending. Claim 11 is amended to correct the informality.

The changes in the Specification, Drawings, and Claims do not introduce new matter but clarify matters shown and described in the application as filed. The foregoing amendments and following remarks are believed to be fully responsive to the Office Action mailed May 16, 2005 and render all currently pending claims at issue patentably distinct over the references cited by the Examiner. The foregoing amendments are taken in the interest of expediting prosecution and there is no intention of surrendering any range of equivalents to which Applicant would otherwise be entitled in view of the prior art. Reconsideration and examination of this application is respectfully requested in light of the foregoing amendments and the following remarks.

**EXAMINER'S OFFICE ACTION**

In the May 16, 2005 Office Action (hereafter "OA") referenced above, the Examiner made additional helpful comments and suggestions regarding Applicant's Application. Applicant appreciates Examiner's thorough review and helpful suggestions regarding Applicant's Application.

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**Rejections under 35 USC § 112**

Claims 1-23 stand rejected under 35 USC §112 first paragraph, as failing to comply with the written description requirement.

The Specification, the Drawings and Claim 11 have been amended in accordance with Examiner's suggestions in the OA.

Thus, the rejections under 35 USC §112, first paragraph, have been overcome and the 112 rejection based on failure to comply with the written description should be removed.

**Rejections under 35 USC § 103(a)**

Claims 1-20, 22-23 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 5,471,478, Mangan, et al., (hereinafter "MANGAN") and Official Notice.

The rejection of Claims 1-20, 22-23 based on MANGAN and Official Notice is respectfully traversed.

Independent Claims 1, 7-11, 17-20 include limitations that define the error control coding method of the present invention to have the structure and steps of:

- providing a plurality of columns and rows associated with said non-volatile memory;

- associating each of said plurality of columns associated with said non-volatile memory with a respective I/O terminal;

- associating a spare column with at least two of each of said plurality of columns associated with both said non-volatile memory and with associated with a respective I/O terminal.

Support for previously presented independent claims 1, 7-10, 17-20 and currently amended claim 11 is disclosed in Applicant's Specification, including currently amended paragraphs [0029] and [0044].

As is disclosed in the independent claims 1, 7-11, 17-20, the present invention operates to enhance efficiency of defective row and column repair by associating a spare column with at least two of each of a plurality of columns associated with both a non-volatile memory and with a respective I/O terminal. Typically, each spare column is reserved for repairing one column corresponding to a specific I/O terminal. However, the present invention allows a more complicated design to operate efficiently.

Nowhere does MANGAN disclose, teach, or suggest that a spare column be associated with at least two of each of a plurality of columns, wherein the at least two columns are each further associated with both non-volatile memory and with a respective I/O terminal. The MANGAN reference does not disclose, teach, or suggest the features of selectively providing shared spare columns within the non-volatile memory. Thus, the present invention as claimed is not rendered obvious by MANGAN. Therefore, independent claims 1, 7-11, 17-20 are patentably distinct over the MANGAN reference, as are all dependent claims depending therefrom respectively.

With regard to claims depending from independent claim 1, 7-11, 17-20, Claims 2-6, 12-16 and 21-23 further define additional features of the error control coding method and system for non-volatile memory of the present invention and are allowable for at least this reason.

Therefore, MANGAN reference fails to provide the necessary motivation of one skilled in the art to combine the individual teaching of MANGAN with conventional practice to arrive at the Appellants' invention. The reference, even when combined with conventional practice, fails to yield Appellant's invention. Claims 1-23 are patentably distinct from the prior art of record and are in condition for allowance.

**CONCLUSIONS**

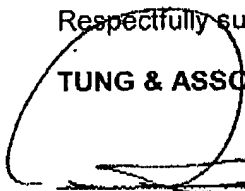
For the foregoing reasons, the Applicant respectfully submits that the present application is now in condition for allowance. Accordingly, the Examiner is requested to issue a Notice of Allowance for all pending claims.

If for some reason Applicant has not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent the abandonment of this application, please consider this as a request for an extension for the required time period and/or authorization to charge our Deposit Account No. 50-0484 for any fee which may be due.

Should the Examiner deem that any further action by the Applicant would be necessary for placing this application in condition for allowance, the Examiner is invited to contact the undersigned agent at the telephone number listed below.

Respectfully submitted,

**TUNG & ASSOCIATES**

  
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**APPENDIX**

- 1) Replacement Sheets for the drawings
- 2) Annotated sheets showing FIG.'s 1, 2, 3 and 4 changes

Marked-Up Sheet.

1/4

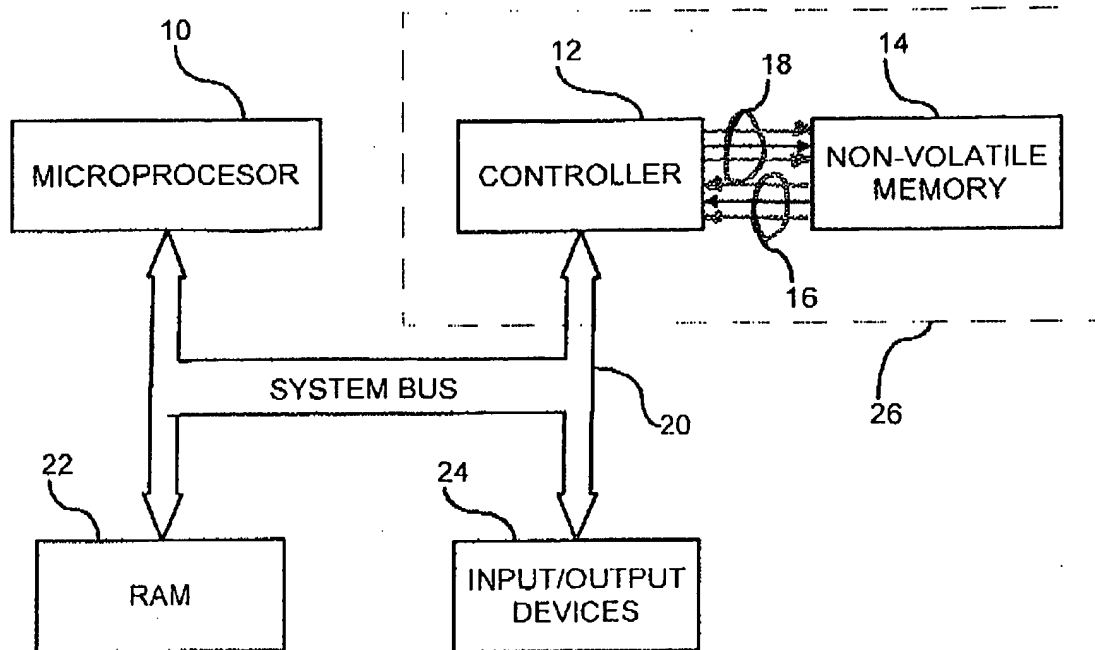


FIG. 1

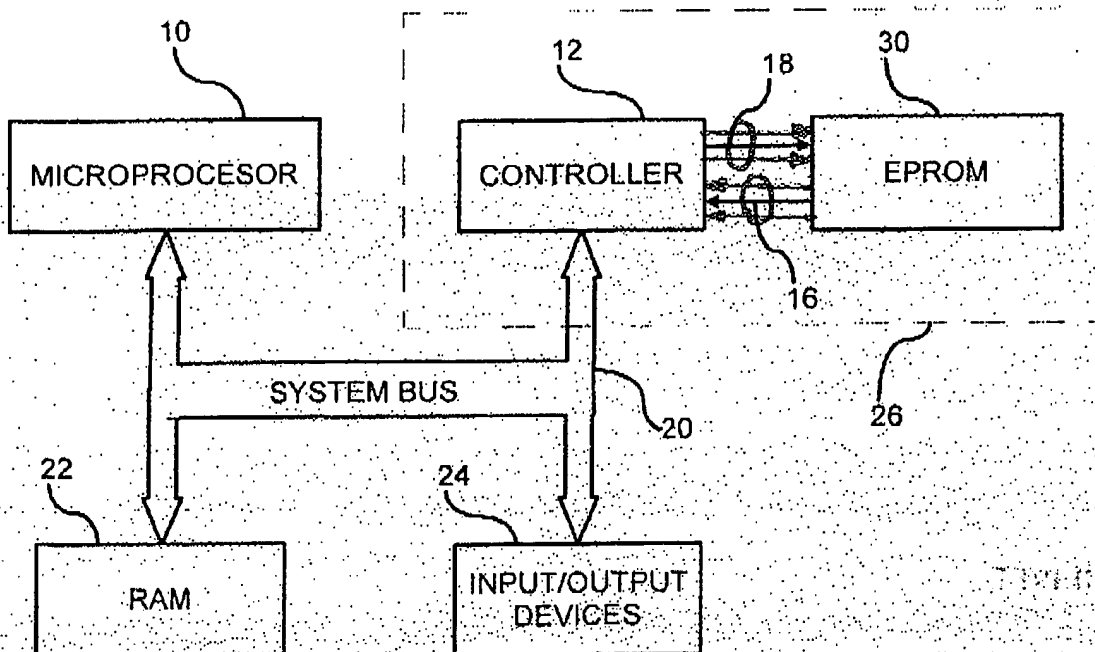


FIG. 2

Marked-up Sheet

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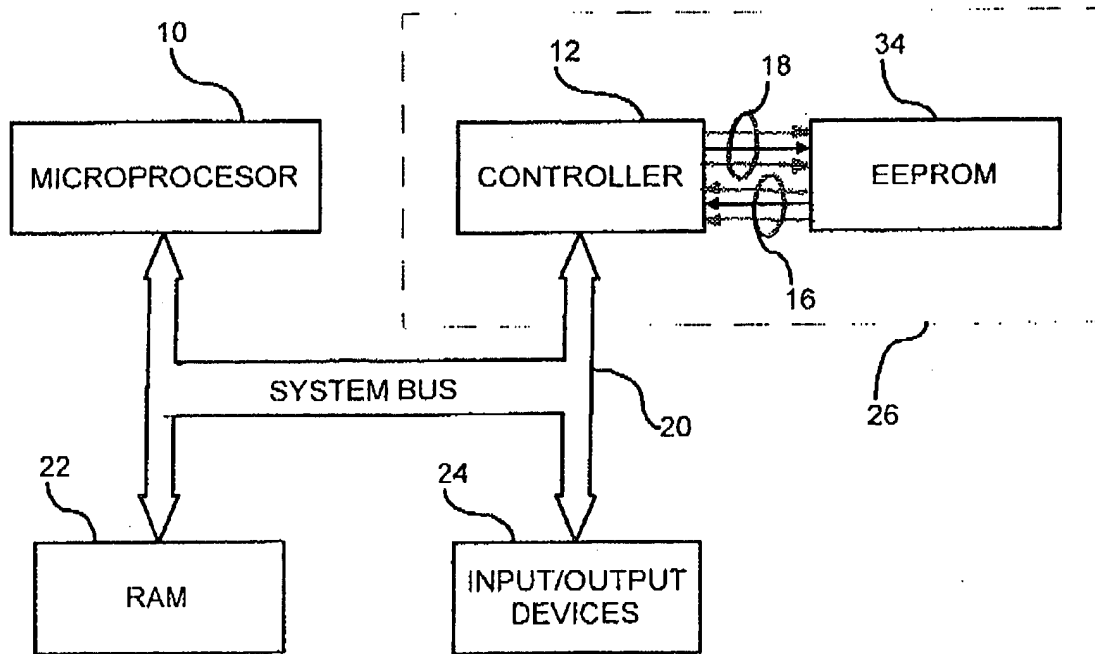
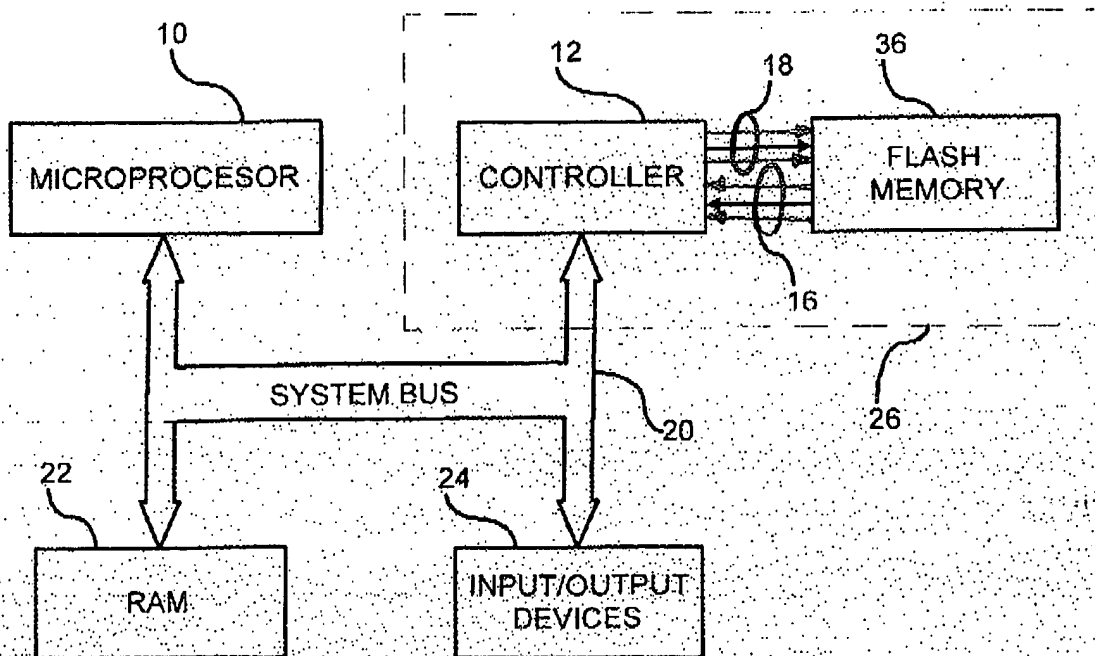


FIG. 3



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